# A Draft Policy for the Management of Wetlands in the Settled Area of Alberta

Alberta
WATER RESOURCES
COMMISSION

The Alberta Water Resources Commission in cooperation with the provincial government departments of Agriculture, Environment, Forestry, Lands and Wildlife, Municipal Affairs and Transportation and Utilities, has prepared a draft policy for the management of wetlands in the settled area of Alberta. The Commission would like to hear your views on the draft policy. The policy is a draft only - a starting point for discussion. Comments and suggestions are encouraged and will be considered during preparation of a final policy.

Public review of the draft policy will occur in several ways. The policy has been widely circulated and written or verbal comments on the document would be appreciated. In October and November of 1990, a series of public meetings will be held to discuss the draft policy. All interested individuals and groups are encouraged to participate. Information about the public meetings and further copies of the draft policy can be obtained by contacting:

Alberta Water Resources Commission
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Edmonton, Alberta
T5K 2M5
Telephone: (403) 422-4232

The draft policy document provides background information on wetlands, describes the benefits that wetlands provide and presents several strategies for wetland management. We hope it stimulates discussion and debate on management of the important wetland resources of the settled area of Alberta.

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Wetlands are a precious natural resource in Alberta. They provide significant benefits including flood control, an on-farm water supply, improved water quality, groundwater recharge and wildlife habitat, as well as recreational and aesthetic enjoyment. Albertans are fortunate to have the many sloughs, marshes and bogs that are scattered throughout the province. They are an integral part of our environment and should be recognized for the benefits they provide.

Unfortunately, the value of wetlands is not widely recognized and they are often seen only as wastelands or a nuisance. In the settled area of Alberta (see Figure 1), the traditional management approach to wetlands has been to convert them to other uses. Wetlands have been filled or drained to provide land for agriculture, urban development and road construction. The report, *Drainage Potential in Alberta: An Integrated Study* (Alberta Water Resources Commission 1987) concluded that continued drainage in the settled area of Alberta would have significant negative effects on wetland resources. A wetland mangement policy for that part of the province was required to address the problem of wetland loss and provide consistent direction to a variety of government agencies that are responsible for management of wetland resources.

*Figure 1. Settled area of Alberta.*

The Alberta Water Resources Commission, with the provincial departments of Agriculture, Environment, Forestry, Lands and Wildlife, Municipal Affairs and Transportation and Utilities, has prepared a draft wetland management policy for public review. This draft policy applies only to the settled area of the province and is intended to encourage comments and suggestions from concerned Albertans.

## WHAT ARE WETLANDS AND WHERE ARE THEY?

Wetlands are formed when water collects in depressions or low areas on the land surface. The type and distribution of natural wetlands are influenced by several factors including climate, surface water, groundwater, vegetation and soils. Different types of wetlands are distributed unevenly throughout Alberta. The drainage potential study (Alberta Water Resources Commission 1987) contains an inventory and classification scheme for temporary and permanent wetlands in the settled area of Alberta. Over 12 million acres (5 million hectares) or approximately 20 percent of the settled area are covered by wetlands.

Within the settled area, the percentage of each river basin that is covered by wetlands increases as one moves north (Figure 2). Often referred to as muskeg or peatland, bog/fen wetlands are composed mainly of moss or sedge peat and are found primarily to the north and west of Edmonton including the Peace River region. Permanent or temporary slough/marsh wetlands are low lying areas with ponded water or restricted surface drainage more common to central and southern Alberta (Figure 3). Sheetwater is shallow, nonpermanent open water that periodically floods flat areas and is common in northwestern Alberta. Seeps are wet areas that result from groundwater discharge at the soil surface and are most common in southern Alberta.

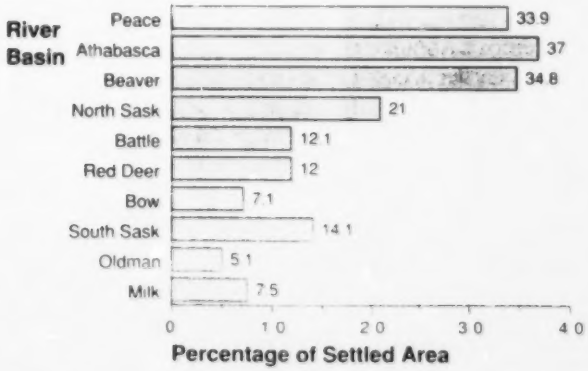



*Figure 2. Percentage of settled area covered by wetlands, by river basin (Alberta Water Resources Commission 1987).*

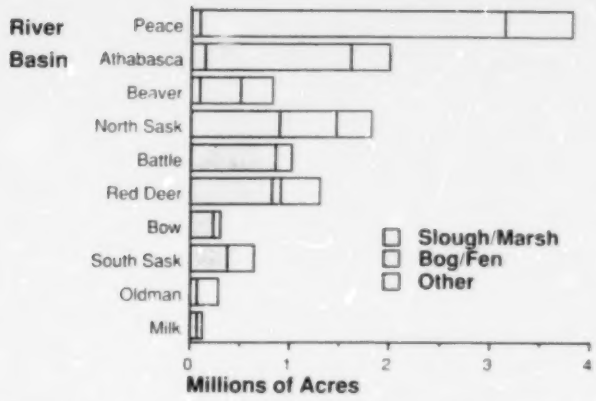



*Figure 3. Area covered by different wetland types, by river basin (Alberta Water Resources Commission 1987).*

## WHY ARE WE LOSING WETLANDS?

Wetlands in the settled area of Alberta have been disappearing steadily since settlement began. Since the turn of the century, the loss of wetland area in the aspen parkland region of Alberta has been about 60 percent and numerous studies have shown significant losses of wetlands in prairie Canada. Various types of wetlands are disappearing at different rates and not all wetlands in the settled area of Alberta are threatened to the same degree. The most serious losses have been of slough/marsh wetlands in the central and southern parts of the province.

Wetlands are lost for a variety of reasons. Expansion and intensification of agriculture are major factors in the decline of wetland acreage. Canadian Wildlife Service personnel estimate that 0.5 percent of Alberta wetlands are lost to agricultural drainage each year. Over 90 percent of the wetland margins in the prairie-parkland area of Alberta are affected by agricultural activities (Turner et al 1987). Farmers often see wetland drainage as a way to bring more land into production, improve the efficiency and timing of field operations, reduce waterfowl damage to crops and remove a source of weeds. Drainage allows farmers earlier access to the land in the spring and allows them to cultivate and seed all areas at the same time. Drainage also prevents waterlogging of crops after summer storms. In parts of southern Alberta, drainage of upslope "recharge" sloughs reduces the spread of dryland salinity problems in low lying areas. Removing wetlands may provide significant benefits to farmers especially if they are not liable for the cost of off-farm drainage and erosion control. It is not difficult to understand why on-farm drainage occurs. Wetlands are also lost when rehabilitation of irrigation canals eliminates seepage areas.

Natural climatic fluctuations play a large part in wetland loss. Successive dry years reduce wetland acreage, both naturally and through increased agricultural activity. Most of these areas would return to wetland status as the climate swings into a wet cycle. However, there is often a strong desire to drain them during subsequent wet years to maintain the land base and field efficiency achieved in drier years.

Wetlands are lost as cities and towns expand onto adjacent areas. Municipalities may drain wetlands to provide areas for development, and eliminate breeding places for biting insects. By 1966, more than 75 percent of the original natural wetlands in the immediate vicinity of Calgary and Edmonton had been lost to other land uses including agricultural and urban development (Lands Directorate 1986).

Development of transportation routes has contributed to the loss of wetlands directly and through alteration of natural drainage patterns. Road allowances in the settled area of Alberta are laid out on a surveyed grid and construction of roads on allowances often requires wetland crossings. In some situations, filling a wetland may be the cheapest way to obtain a right-of-way for road construction.

Wetlands may be lost or damaged when horticultural peat is extracted from bogs, if drainage occurs to enhance timber production and when oil and natural gas exploration and development occur. Wetlands may be degraded by solid waste disposal, water contamination, siltation, channelization and other types of pollution. The biological processes in wetland ecosystems may be destroyed if pollution levels are excessive.

*Agricultural activities have had a significant effect on wetlands.*

Wetland resources in the settled area of Alberta provide a continuous, sustainable stream of environmental, economic and social benefits that contribute greatly to the quality of life. Many wetland uses can be measured in economic terms, while other significant values do not lend themselves to economic evaluation. For example, Albertans may value the existence of wetlands, though they never visit or directly benefit from them. Classification of wetland resource values is difficult and categories may overlap. Major categories of wetland resource values in alphabetical order are as follows:

**Agricultural value** - Wetlands may have significant agricultural value. The native grasses and sedges found in and around wetlands are high in protein and may be grazed or cut for hay. During drier years, wetland margins may provide the only available forage. Backflooding in the spring, combined with subsequent controlled drawdowns, can increase hay yields. Wetlands are also valuable for reducing topsoil erosion and improving soil moisture. Permanent wetlands are often used as an on-farm water supply for livestock and domestic use. Wild rice is grown in permanent wetlands in the settled area of Alberta.

**Ecological value** - The ecological value of wetlands is significant. They are dynamic, highly productive ecological systems that are an important source of genetic diversity. A wide variety of birds, mammals, amphibians, invertebrates and plants are produced in wetlands. Many wetland species are important links in complex food chains. Wetlands also contribute nutrients and energy to surrounding ecological systems. Significant or representative wetlands may have scientific or educational value. Some wetlands support rare or endangered plants or animals, such as Alberta's rarest native plant, the bog adder's-mouth orchid, and the rare trumpeter swan.

*Wetlands are complex, productive ecological systems.*

**Heritage value** - The pattern of settlement and fabric of rural life in Alberta have been influenced strongly by wetlands. Wetlands are an important part of the landscape in the settled area of Alberta and there is heritage value in maintaining wetlands now and for the future.

**Peat resource value** - Wetlands are a source of peat that is used mainly for horticultural purposes. Most horticultural peat in Alberta is produced on public land in the settled area. Peatlands also have potential for production of timber, peat for fuel and peat for industrial purposes such as absorbents. The peat industry in Alberta is in its infancy and increased demand for peat resources is expected.

**Recreational and tourism value** - Wetland-related recreation and tourism have substantial value to Alberta. A wide range of consumptive and non-consumptive recreational and tourism opportunities are dependent on wetlands. Hunting, cross country skiing, skating,bird watching, photography and enjoyment of the aesthetic and scenic values of wetlands are popular activities for Albertans and non-residents, alike. Numerous businesses provide goods and services to people engaged in recreational use of wetlands.

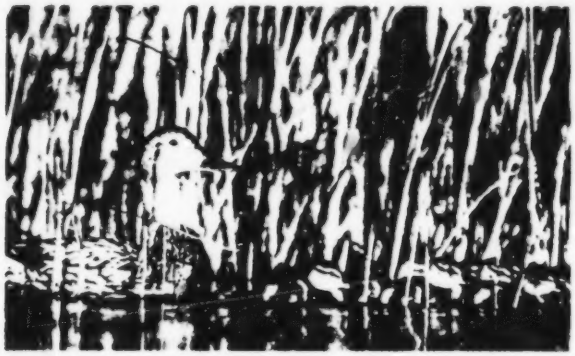
**Water resource (hydrological) value** - Wetlands are important for the control and storage of surface water and the recharge and discharge of groundwater. By storing water and slowing the rate of runoff after the spring melt or major rainstorms, wetlands reduce the risk of flooding, soil loss and downstream sedimentation. This is particularly important in areas where soils are sensitive to erosion, such as northwestern Alberta (Northern Alberta Development Council 1987). Infiltration of water stored in wetlands contributes to recharge and maintenance of water table levels in some areas. Permanent wetlands are a valuable source of water for domestic, livestock and industrial use.

Wetlands can also improve water quality through the incorporation of nutrients and chemical residues into wetland vegetation. Appropriately managed wetlands have been used successfully for treatment of wastewater. For example, the Blue Quills School near St. Paul has used wetlands for wastewater treatment for over 40 years.

**Wildlife and fisheries habitat value** - Wetlands, wetland margins and surrounding uplands provide important habitat for a large variety of plant and animal species. In Alberta, roughly 45 species of waterfowl, 81 species of other birds and at least 30 mammals such as beaver, mink, muskrat, moose and deer, use

wetlands or wetland margins for all or part of their life cycles. Pike use some types of wetlands for spawning. Wetlands may help maintain the quality of water in adjacent lakes and streams that support fish populations. Many of the animals that depend on wetlands are important for hunting, fishing, trapping and non-consumptive uses.

Alberta wetlands are vital to North American ducks providing habitat for nearly one-fifth of the continental breeding population. Slough/marsh wetlands in the settled area of the province are part of the prairie "duck factory" and are particularly important for maintaining migratory waterfowl populations (Environment Canada 1986).



*Wetlands are important for waterfowl production.*

Wetlands make a substantial contribution to the Alberta economy and the economic costs of wetland loss are significant. The loss of wetland-related recreational activities has serious economic implications. Hotels, restaurants, sporting goods stores and other businesses involved in the hunting, recreation and tourism industries are affected. The costs of replacing the water purification, flow regulation and erosion control functions of wetlands are high, as are costs for mitigation of lost wildlife habitat (Anderson 1987).

## WHO MANAGES WETLANDS IN THE SETTLED AREA OF ALBERTA?

Wetlands in the settled area are controlled by individuals, private organizations and governments. Approximately 73 percent of the settled area is private land, 23 percent is public land under provincial government control and the remaining 4 percent is under the control of the federal government, Metis settlements and Indian reserves. Decisions respecting wetlands are made by a variety of private individuals and organizations and federal, provincial and municipal governments. A decision to drain one small wetland may seem insignificant but the cumulative result of many such decisions is a significant loss of wetlands.

No provincial legislation specifically covers the management of wetlands. Wetland resources are addressed by a variety of laws and are managed by a number of different provincial government departments. Each of these departments is responsible for providing benefits to the public from the wetland resources under its jurisdiction. For example, the Department of Environment manages water resources and the Department of Forestry, Lands and Wildlife manages wildlife resources. Cooperation, coordination and communication are required between the many government departments with policies and programs that directly or indirectly affect wetlands.

## WHAT ARE THE OBJECTIVES FOR WETLAND RESOURCES?

A wetland management policy for the settled area of Alberta should recognize existing provincial government management objectives for wetland resources. The following objectives for wetland resources have been stated or implied in government policies. The objectives may conflict in some situations and it may not be possible to meet all objectives in every wetland. The objectives must be reconciled under the balanced approach required to manage wetlands. Drainage may be in the best interests of Albertans in some situations and should not be excluded as a management tool. The objectives are equally important and should be considered when wetland management decisions are being made.

- Maintenance of long-term agricultural productivity including conservation of soil resources.
- Maintenance of ecological values.
- Maintenance of heritage values.
- Maintenance of peat resource values.
- Protection of private and public property and public safety.
- Maintenance of recreational and tourism opportunities.
- Maintenance of a sustainable supply of high quality groundwater.
- Protection and improvement of surface water quality.
- Retention of wildlife habitat and maintenance of wildlife populations.

The following concerns were considered during development of the draft wetland management policy for the settled area of Alberta:

1) ***There has been a significant loss of wetlands in the settled area of Alberta.*** This is particularly true for slough/ marsh wetlands in the central and southern regions of the province.

2) ***Different types of wetlands with different values are found on private and public land throughout the settled area of the province.*** The distribution, permanency and importance of wetlands vary throughout the settled area. Different wetlands have different biological, physical and chemical characteristics.

3) ***The costs and benefits of wetland drainage and retention are distributed unevenly among landowners and society as a whole.*** Many of the benefits of wetland drainage and the costs of wetland retention can be assigned to the landowner, while many of the costs of wetland drainage and the benefits of wetland retention are societal in nature. Landowners do receive benefits of wetland retention as members of society and may receive on-farm wetland benefits as well. Few methods exist to transfer the value of societal benefits derived from wetlands on private land to the landowner.

4) ***Albertans are generally unaware of the many benefits of wetlands and are often unaware of or indifferent to the loss and degradation of wetlands that result from human activities.***

5) ***Drainage is attractive to many agricultural producers.*** Drainage increases operating efficiency and is financially feasible in many situations if agricultural producers are not made liable for off-farm and mitigation costs. In addition, subsidies and incentives for drainage have been available and there has been social pressure to drain wetlands.

6) ***Programs offered by government departments and nongovernment organizations often appear to conflict in purpose with respect to wetlands.*** Among the numerous government programs that affect wetlands, some have had the effect of promoting drainage while others serve to preserve wetlands.

The following principles guided the development of the draft wetland management policy for the settled area of Alberta:

1) ***Wetlands provide numerous resource values that are directly and indirectly linked. Integrated management of wetland resources is desirable.*** Where possible, wetlands should be managed to produce multiple benefits.

2) ***The interests of individual landowners and Alberta society as a whole must be considered.*** Solutions should be sought that benefit both groups.

3) ***Existing legislation, policies and programs of the various government departments must be considered.*** Legislative, policy and program changes may be necessary.

4) ***Society has some responsibility to assist in the protection of wetlands on private land.*** Some of the disadvantages of maintaining wetlands are borne by the landowner while many of the benefits go to society.

5) ***Wetland management and conservation require the cooperation and support of federal, provincial and municipal governments and private individuals and organizations.***

*The recreational values of wetlands are enjoyed by many Albertans.*

## AN OPTION FOR WETLAND MANAGEMENT IN THE SETTLED AREA OF ALBERTA

The provincial government is proposing the following policy for discussion and public review. The draft policy for the management of wetlands in the settled area of Alberta is in two parts - first, a general statement of principle; second, a series of strategies for planning, education, management, program delivery and legislative review regarding wetlands. As a general statement of principle, the following is proposed:

***The Government of Alberta will ensure the conservation and management of wetland resources in the settled area of Alberta to sustain the agricultural, environmental, economic and social benefits that wetlands provide.***

The following strategies for fulfillment of this policy are intended to guide provincial government departments in the delivery of programs affecting wetlands. The strategies are proposals only and are not all inclusive. Elaboration and refinement of the strategies are required.

### Planning Strategies

1) Conduct inventories of the settled area of Alberta to determine the distribution, type, condition and status of wetlands in support of wetland management planning.

2) Establish objectives for wetland management in the settled area. Existing river basin, integrated resource and municipal planning programs may assist in establishing wetland management objectives at appropriate scales.

3) Variability in the type and distribution of wetlands throughout the province must be recognized when wetland management objectives are being developed. Different management strategies may be required in different areas of the province.

### Education and Awareness Strategies

1) Emphasize the benefits of wetlands to governments and landowners, and encourage management of wetland resources that will provide multiple benefits.

2) Emphasize the benefits of wetlands to all Albertans.

### Wetland Management Strategies

1) Drainage of permanent slough/marsh wetlands should not be permitted.

2) Financial and other incentives should be provided to landowners to maintain nonpermanent wetlands and wetland margins in accordance with management objectives.

3) Management of nonpermanent wetlands may include controlled drainage if regional wetland benefits are sustained.

4) Public lands containing significant wetlands should be maintained in public ownership. The provincial government should consider purchasing or leasing private land that has significant wetlands, or wetland margins that are associated with flooding.

5) Consideration should be given to creation, enhancement or use of wetlands as water management tools for the purposes of flood control, water quality improvement or regional wetland consolidation.

6) A more complete understanding of wetland functions and processes is necessary for effective management. Research priorities concerning wetland management should be identified.

### Program Delivery Strategies

1) Government departments should ensure that programs directly or indirectly affecting wetlands are consistent with this policy.

2) Government departments should be aware of intergovernmental programs and those of nongovernment organizations and private individuals, that may have an impact on wetlands. Furthermore, these departments should support and encourage consistent and complementary activities.

### Legislative Review Strategies

1) All legislation affecting management of wetlands should be reviewed to ensure consistency with approved government policy.

2) Any legislative change required to implement an approved wetland management policy should be determined.

## WHAT HAPPENS TO THE DRAFT POLICY AFTER PUBLIC REVIEW?

After public review of the draft wetlands policy is complete, all public comments will be considered by the Alberta Water Resources Commission and the provincial government committee that prepared the draft policy. A summary of public comments will be forwarded with a recommended policy to Cabinet for consideration. If approved by Cabinet, the document will become provincial government policy for the management of wetlands in the settled area of Alberta. It will be implemented through the actions of provincial government departments and will be consulted whenever decisions are made that affect wetlands in the settled area of Alberta.

## SUGGESTED READING

For a more complete review of wetland issues as they relate to policy development, see the companion document *Wetland Management in the Settled Area of Alberta: Background for Policy Development*. A limited number of these documents are available at no cost from the Alberta Water Resources Commission at the address inside the front cover.

A list of readings on wetland management can also be obtained by contacting the commission.

## REFERENCES


Alberta Water Resources Commission. 1987. *Drainage Potential In Alberta: An Integrated Study*. Edmonton, Alberta. 163 pp.

Anderson, M. (Marv Anderson and Associates). 1987. *Drainage Potential in Alberta: An Integrated Study - Technical Report 6: Economics Component*. Alberta Water Resources Commission, Edmonton, Alberta. 133 pp.

Environment Canada. 1986. *North American Waterfowl Management Plan*. Canadian Wildlife Service Report, May 1986. Ottawa. 19 pp.

Lands Directorate. 1986. *Wetlands in Canada: A Valuable Resource*. Lands Directorate, Environment Canada Fact Sheet 86-4. Ottawa. 8 pp.

Northern Alberta Development Council. 1987. *Water in Northern Alberta: Technical Report*. Northern Alberta Development Council, Peace River, Alberta, December 1987. 125 pp.

Turner, B.C., G.S. Hochbaum and F. Dale Caswell. 1987. *Agricultural Impacts on Wetland Habitats on the Canadian Prairies, 1981-85*. Transactions of the 52nd North American Wildlife and Natural Resources Conference. Pp. 206-215.

| Policy Statements | Comments<br>*Please provide your views on the proposed strategies and your suggestions about how wetlands should be managed.* |
|---|---|
| *3) Management of nonpermanent wetlands may include controlled drainage if regional wetland benefits are sustained.*<br><br>*4) Public lands containing significant wetlands should be maintained in public ownership. The provincial government should consider the option of purchasing or leasing private land that has significant wetlands, or wetland margins that are associated with flooding.*<br><br>*5) Consideration should be given to creation, enhancement or use of wetlands as water management tools for the purposes of flood control, water quality improvement or regional wetland consolidation.*<br><br>*6) A more complete understanding of wetland functions and processes is necessary for effective management. Research priorities concerning wetland management should be identified.* | |
| ***Program Delivery Strategies** are proposals to increase government awareness and cooperation regarding wetland management.*<br><br>*1) Government departments should ensure that programs directly or indirectly affecting wetlands are consistent with this policy.* | |

| Policy Statements | Comments<br>*Please provide your views on the proposed strategies and your suggestions about how wetlands should be managed.* |
|---|---|
| *2) Government departments should be aware of intergovernmental programs and those of non-government organizations and private individuals, that may have an impact on wetlands. Furthermore, these departments should support and encourage consistent and complementary activities.* | |
| ***Legislative Review Strategies** propose evaluation of legislation in relation to a final wetland policy.*<br><br>*1) All legislation affecting management of wetlands should be reviewed to ensure consistency with approved government policy.*<br><br>*2) Any legislative change required to implement an approved wetland management policy should be determined.* | |
| ***General Comments and Ideas*** | |
| ***Specific Concerns*** | |

# What Do You Think About Wetlands?

The draft wetland policy is intended to encourage comments and suggestions from concerned Albertans. Your input will help the provincial government prepare a final policy that best reflects the needs and desires of the people of Alberta. We want to know what you think about wetlands in the settled area. This form lists the general statement of principle and proposed strategies from the draft policy. Please write your comments in the space provided and return the form to the Alberta Water Resources Commission at 910, 10045 - 111 Street, Edmonton, Alberta, T5K 2M5. If you wish to provide additional comments on the draft policy or other aspects of wetland management in the settled area, please send written submissions to the commission or call 422-4232 in Edmonton. We would appreciate receiving all comments by December 31, 1990. Thank you for your help.

| **Policy Statements** | **Comments** *Please provide your views on the proposed strategies and your suggestions about how wetlands should be managed.* |
|---|---|
| ***General Statement of Principle***<br><br>*The Government of Alberta will ensure the conservation and management of wetland resources in the settled area of Alberta to sustain the agricultural, environmental, economic and social benefits that wetlands provide.* | |
| ***Planning Strategies** are proposals for the collection of information and development of management objectives for wetlands.*<br><br>*1) Conduct inventories of the settled area of Alberta to determine the distribution, type, condition and status of wetlands in support of wetland management planning.*<br><br>*2) Establish objectives for wetland management in the settled area. Existing river basin, integrated resource and municipal planning programs may assist in establishing wetland management objectives at appropriate scales.* | |

| Policy Statements | Comments<br>*Please provide your views on the proposed strategies and your suggestions about how wetlands should be managed.* |
|---|---|
| *3) Variability in the type and distribution of wetlands thoughout the province must be recognized when wetland management objectives are being developed. Different management strategies may be required in different areas of the province.* | |
| ***Education and Awareness Strategies** are proposals for informing Albertans about wetland values and benefits.*<br><br>*1) Emphasize the benefits of wetlands to governments and landowners, and encourage management of wetland resources that will provide multiple benefits.*<br><br>*2) Emphasize the benefits of wetlands to all Albertans.* | |
| ***Wetland Management Strategies** are proposed actions to achieve wetland management objectives.*<br><br>*1) Drainage of permanent slough/marsh wetlands should not be permitted.*<br><br>*2) Financial and other incentives should be provided to landowners to maintain non-permanent wetlands and wetland margins in accordance with management objectives.* | |